

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
1 November 2001 (01.11.2001)

PCT

(10) International Publication Number  
**WO 01/81494 A3**

- (51) International Patent Classification<sup>7</sup>: C08L 63/08, 53/00, C08J 3/20
- (21) International Application Number: PCT/US01/13447
- (22) International Filing Date: 27 April 2001 (27.04.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/199,949 27 April 2000 (27.04.2000) US
- (71) Applicant (*for all designated States except US*): **KRATON POLYMERS RESEARCH B.V.** [NL/NL]; Badhuisweg 3, NL-1031 CM Amsterdam (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **ERICKSON, James, R.** [US/US]; 20715 Chapel Glen Court, Katy, TX 77450 (US). **ZIMMERMANN, Esther, M.** [US/US]; 10910 Elmdale, Houston, TX 77070 (US).
- (74) Agent: **TYLER, Gene, L.**; Madan, Mossman & Sriram, P.C., Suite 700, 2603 Augusta, Houston, TX 77057 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report
- (88) Date of publication of the international search report:  
11 April 2002
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: NON-AQUEOUS SOLVENT-FREE PROCESS FOR MAKING UV CURABLE ADHESIVES AND SEALANTS FROM EPOXIDIZED MONOHYDROXYLATED DIENE POLYMERS

(57) Abstract: This invention is a process for making UV curable adhesives, sealants, coatings, ink, flexible printing plates, laminating adhesives, fibers, gaskets, and related compositions, films, and thin parts, wherein an epoxidized monohydroxylated polydiene polymer comprised of at least two different diene monomers wherein at least one is a diene monomer which yields unsaturation suitable for epoxidation is used as the binder for the composition. The preferred epoxidized monohydroxylated polymers are block copolymers of isoprene and butadiene wherein a hydroxyl group is attached at one end of the polymer molecule. These polymers may be hydrogenated or unhydrogenated. The process involves mixing the above polymer or the polymer with one or more other formulating ingredients together with an insoluble photoinitiator which is preferably selected from the group consisting of triaryl sulfonium salts. The mixture is then subjected to mixing conditions in a high speed mixer, preferably a high speed disk disperser, at a blade tip speed of from 200 to 2000 cm/sec at a temperature from 25 to 130 °C, preferably from 40 to 100 °C. This process is highly suited for making stable cationic photoinitiator concentrations that can be added to adhesive, coating, or sealant formulations to effect rapid UV cure.

WO 01/81494 A3